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# USSR Report

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## USSR REPORT ECONOMIC AFFAIRS

No. 1010

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ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

TAXES SAID TO AMOUNT TO 10 PERCENT

Moscow MOSCOW NEWS in English No 15, 18-25 Apr 82 p 3

[Article by Boris Danilov]

[Text]

What taxes do Soviet people pay?

Daniel LEGRAND

(France)

Taxes account for 10 per cent of the Soviet budget.

All Soviet citizens engaged in the economy, except the collective farmers, pay income tax which, depending on earnings, varies from 0.35 to 13 per cent of the wages.

What we call "bachelor" tax, levied on people without children, redistributes part of the incomes in favour of those who have children. This tax makes up 6 per cent of the wages and is paid by childless men aged 20 to 50 and married childless women aged 20-45.

Exempt from that tax are single women, collective farmers, servicemen, students and some other groups.

People in the lowest income bracket do not pay the income and "bachelor" taxes.

Collective farmers, industrial and office workers living in rural areas and owning a private plot of land pay an agricultural tax which varies from 20 kopeks per 100 square metres to 2.5 roubles, depending on the geographical and climatic conditions, the quality of the soil and artificial irrigation. Every Union Republic establishes its own agricultural tax levels. Old-age pensioners are exempt from the tax, and teachers, doctors and other specialists working in rural areas enjoy rebates.

Here are some figures for the Poltava Region in the Ukraine. An average subsidiary private plot here is 0.5 ha. The tax is 0.9 roubles per 100 square metres, which works out at 45 roubles per plot. But that is between 1/20 and 1/25 of the income that the family derives from it.

The taxes go into the centralized state budget. But some taxes and levies go into the budgets of local government bodies. That includes the tax on buildings, land rent, the tax on car owners, etc. The tax on buildings amounts to one per cent of the cost of a privately owned building. The land rent is the pay for using the land, which is state property, and it amounts to between 0.4 and 1.8 kopeks per 1 square metre per year.

An average industrial worker's family pays 8.6 per cent of the disposable budget in taxes and a peasant pays 1.3 per cent.

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## ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

GOSPLAN HEAD ON ECONOMIC PLANS FOR 1980'S

Moscow APN DAILY REVIEW in English 12 Apr 82 pp 1-15

[Article by N. Baibakov, deputy chairman of the USSR Council of Ministers, chairman of the USSR state planning committee: "Economic Strategy of the CPSU Today"]

[Text]

The 26th CPSU Congress declared that in the 1980s the Communist Party would consistently continue carrying out its economic strategy, the supreme aim of which is a steady rise in the living and cultural standards of the people, better conditions for the all-round development of the individual on the basis of the further growth of the efficiency of production as a whole, higher labour productivity, and the greater social and labour activity of the Soviet people.

This course will be implemented through the steady growth of production, the restructuring of its material and technical basis to incorporate the latest achievements of the scientific and technical revolution, the change-over of the economy to intensive growth factors, the greater efficiency of economic performance and the higher quality of work.

An important event in the life of the country was the November 1981 Plenary Meeting of the CPSU Central Committee which discussed the drafts of the state plan for the economic and social development of the USSR for 1981-1985, the state plan for the economic and social development of the USSR for 1982, and the state budget of the USSR for 1982. L.I. Brezhnev, General Secretary of

the CPSU Central Committee, delivered a long speech at the Plenary Meeting. He said that a great deal of political, organisational and economic work had been carried out since the 26th CPSU Congress and underscored the increased labour and political activity of the Soviet people. L.I. Brezhnev profoundly and comprehensively dealt with ways for the further fulfilment of the decisions passed by the Congress, gave a detailed characteristic of and made a political, social and economic assessment of the 11th Five-Year Plan and the plan for the second year of the current five-year period, and expressed confidence that the major and complicated tasks of communist construction, shaped by the Congress, would be successfully fulfilled.

Different factors, positive as well as those hindering economic growth, influenced the targets of the 11th Five-Year Plan. The positive factors include a tremendous scale of production, a huge production and scientific potential, millions of skilled workers, technologists and scientists, and large known resources of minerals allowing the country to remain self-sufficient in fuel and crude products.

Under the previous five-year plan alone, the gross social product of the USSR increased by nearly 30 per cent and its basic production funds, which are a major constituent of Soviet national wealth, reached the colossal figure of nearly 1,150,000 million roubles. In the past 15 years the gross social product and national income have gone up by 2.5 times and industrial output by 2.7 times. The real incomes of the people have nearly doubled. It is on this basis that the targets of the 11th Five-Year Plan were formulated.

The 11th Five-Year Plan will be implemented in a period, whose specificities will tell on the economic growth of the country.

First, the unfavourable demographic situation will nearly halve, compared with the previous five years, the possible rates of increase in the manpower employed in material production. This will necessitate new effective measures to boost labour productivity.

Second, fuel extraction will continue moving east of the Urals. The output of oil, plus gas condensate, in Western Siberia will reach 399 million tons in 1985, and the share of Western Siberia in national oil output will make 63 per cent, as against 52 per cent in 1980. The proportion of West Siberian gas will grow to 78 per cent, compared with 62 per cent in 1980. This makes it necessary to increase spending on the construction of enterprises in the fuel sector, the extraction and transportation of fuel.

Third, increased allocations are made to maintain the current level of production, particularly in the raw material and fuel sectors. For the economy as a whole, the share of these investments will increase from 26 per cent in the previous five years to 35 per cent under the current five-year plan, and for oil industry, from 75 per cent to 92 per cent, respectively.

Fourth, bigger funds are allocated for environmental protection. Under the 11th Five-Year Plan, nature protection schemes will absorb over 10,000 million roubles.

In elaborating the new plan, we had to remember that under its previous five-year programme the country had failed to cope with the targets for the commissioning of production capacities, the growth of labour productivity, and the output of some major products in some industrial sectors. Our agriculture had developed in a difficult situation brought about by bad weather which had adversely affected the performance of the agro-industrial complex as a whole. The uneven fulfilment of assignments gave rise to certain economic imbalances which must be removed under the current five-year plan. We also had to take into account the international situation which had become more complicated.

That was why, in drafting the 11th Five-Year Plan, to ensure the further growth of the Soviet people's wellbeing the emphasis was laid on stepping up economic growth through the intensification of production, the improvement of its structure and the system of economic management.

This predetermined a number of specific features of the current five-year plan which provides for:

a considerable rise in the efficiency of production, higher growth rates of labour productivity, and improvements in other economic indicators, particularly those dealing with the level of allocations for production and with profits;

the higher growth rates of industrial and agricultural production;

bigger overall increases in the output of major products;

a greater share of the consumption fund in national income and the priority growth of the consumer goods sector (Group B);

the priority growth of national income, compared with investments, which was not the case under earlier five-year plans.

The general economic targets of the current Five-Year Plan correspond to the assignments set forth by the 26th CPSU Congress. In the current five-year period, national income will grow by 18 per cent; industrial output by 26 per cent, and farm gross output by the average of 13 per cent a year. Real increases will grow in size as the growth rates of industry and agriculture and labour productivity will top the figures for the previous five-year plan. This is illustrated by Table below (real increases in thousand million roubles):

	The 10th Five-Year Plan	The 11th Five-Year Plan
National income	74.5	78.5
Industrial output	122	160
Gross farm output (yearly average)	10.2	16.4
Retail trade (comparable prices)	52.7	61.4



Real increases in the social product and national income will grow with smaller absolute rises in the number of production personnel and in the volume of production investments than in 1975-1980.

x

x

x

Targets for the growth of living standards hold central place in the current Five-Year Plan. National income's consumption fund, i.e. resources used directly to satisfy the growing requirements of the Soviet people, will grow at priority rates. As a result, the consumption fund's share in national income will increase to 78 per cent, as against 75.3 per cent in 1980. Thanks to this factor alone, the public consumption of goods will grow by more than 12,000 million roubles in 1985. To effect such a change in this major economic proportion, all economic sectors will have to increase their contribution to the growth of public wellbeing.

The current Five-Year Plan's targets for social development and the growth of living standards correspond to the assignments fixed in the Guidelines endorsed by the 26th CPSU Congress. As for the growth of the incomes of the people, primarily wages, they will be geared to the final results of work, i.e. to the efficiency of production and the quality of goods. In 1985 a total of 16,600 million roubles will be spent from the centralised sources of financing on new schemes in this field. Of this, nearly 10,000 million roubles will go to raise industrial wages and salaries.

As a result of carrying out the projected undertakings, under current Five-Year Plan the average monthly wages of factory and office workers will grow by 14.5 per cent to exceed 193 roubles in 1985. The remuneration of collective farmers for work in the socialised sector will increase by 20 per cent under the current Five-Year Plan.

Under the 11th Five-Year Plan, the public consumption funds will go up by 23 per cent to reach 144,000 million roubles in 1985. The bulk of the increase will result from the greater spending of the state on pensions, grants, stipends, and holiday allowances. Part of the public consumption funds will be used to finance centralised schemes to increase state assistance to families with children and to newlyweds, and further to improve social security services. As a result of increases in the remuneration for labour and in the public consumption funds, a major step forward will be made towards abolishing the category of low income families. In the current five-year period, the proportion of families with an income of over 100 roubles per head will grow by more than 25 per cent.

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The construction of housing and amenities will expand. In the current five-year period, 530 million square metres of housing will be built at the expense of all sources of financing. The scale of housing construction will grow to a particularly great extent in the eastern regions of the country and in the rural areas. The transition of housing construction to new standard designs with improved flat lay-outs will be completed, in the main, in 1981-1985. Housing facilities to be built in the countryside, will incorporate a higher proportion of houses with all modern conveniences.

Ensuring adequate commodity backing for the growing money incomes of the population is a key problem of the 11th Five-Year Plan. The main means of achieving this is to increase the output of consumer goods, paid services and retail trade.

In accordance with the decision of the policy-shaping bodies, the country is working out the food programme. This work is directed by the USSR State Planning Committee. Taking part in it are ministries, government departments, the councils of ministers of the Union Republics, and scientific institutions. The food programme will have tactical and strategic objectives.

Its tactical objective, to be reached in the next few years, is steeply to increase the output of foods from available raw materials. This demands, above all, the reduction of losses and the development of storage facilities and food industry.

The strategic objective of the food programme is to increase the output of foodstuffs which are in short supply, livestock products in the first place.

Instrumental for the faster growth of the output of consumer goods and the solution of the food problem is the development of all sectors of the agro-industrial complex, first of all, agriculture. In the field of agriculture, the main target is to develop livestock-breeding and raise livestock productivity. A bigger output of fodder and a better pattern of fodder production will play an important role in the development of livestock-breeding.

x

x

x

The 26th CPSU Congress stressed that to achieve these economic and social targets the economy would have to be switched over to intensive growth factors without delay. The course towards the intensification of production reveals itself primarily in the assignments for the growth of labour productivity. This is a first priority problem for the country. Production should grow mostly by raising labour productivity, not employment.

Higher labour productivity will account for 90 per cent of the increase in national income and the equal rise in industrial output, particularly for almost the entire increase in the output of oil processing, coal industry, non-ferrous metallurgy, and fishing industry. The number of people employed in agriculture will fall further. The growth of labour productivity under the 11th Five-Year Plan will be tantamount to saving the labour of 17 million workers.

That is why the improvement of working conditions in every way possible is becoming a major demand of the Party. Machinery should be not only efficient, but also more convenient in handling, least of all tiresome and make users' work interesting.

As for the major reserves for labour productivity growth, the 26th CPSU Congress pointed to the need to ensure the more rational use of working time and the reduction of its inefficient use and losses. In the past few years, the losses of working time have gone down and labour turnover has decreased thanks to the growth of the technical standards of production, the increased material interest of personnel in the end results of their performance, and better working conditions.

A major reserve of higher labour productivity lies in reducing labour turnover and in forming stable work collectives. Since industrial personnel do not work for an average of 30 or 31 days when they look for new jobs, the country loses the services of 650,000-700,000 workers a year for this reason alone.

The impressive programme for the economic and social development of the country, drafted by the 26th CPSU Congress for the 11th Five-Year Period and the 1980s in general, makes it necessary to exploit the tremendous resources of crude products, fuel, energy and other materials. It should be stressed that the constantly growing output and transportation of these materials become increasingly expensive. Thus, under the previous five-year plan, investments in the output of a tonne of oil grew by more than two times, as compared with the early 1970s. These investments will further increase under the 11th Five-Year Plan. That is why special importance attaches to the increasingly economical and rational use of all types of crude products, materials, fuel and energy.

This explains why the level of the intensification of production and the growth of its efficiency are largely determined by cuts in the material-intensity of products. At present materials, including crude products, fuel and energy, account, in terms of value, for 85 per cent of the expenditures on industrial production, and a 1 per-cent cut in their consumption will save the country 6,000 million roubles.

Compared with the previous five years, the 11th Five-Year Plan provides for greater reductions in inputs in the manufacture of major products. Schemes to ensure the more rational and economical use of fuel and electricity require, as calculations show, 50% or 66.7% less money than the production of the same quantities of fuel and energy.

Of decisive importance for the economization of material resources are resource-saving programmes, particularly a programme for the more effective use of the fuel and energy, the rational use of metal and the comprehensive utilisation of major minerals.

A change in the correlation of the growth rates of national income and investments is a major proportion characterising the accent the economy makes on the intensive growth factors. At all earlier stages of socialist construction in the USSR, investments grew faster than national income. This was because the number of workers grew greatly and it was necessary to create new jobs for them; big investments were also necessary to exploit new deposits in undeveloped areas. The irrational use of investments also influenced this correlation. In the previous five years, national income, used for consumption and accumulation, increased by 24 per cent and investments by 29 per cent, compared with the ninth five-year plan. Under the 11th Five-Year Plan, this major economic proportion will change drastically. National income, used for consumption and accumulation, will grow by 18 per cent, while investments by only 10.4 per cent.

A reduction in the growth rates of investments, compared with the level achieved under the 10th Five-Year Plan, ensures a more effective connection between the investment construction programme, on the one hand, and material and technical resources and the possibilities of construction and erection organisations, on the other. This corresponds to the course of the 26th CPSU Congress towards the growth of production with smaller investments.

Under the current plan, state investments will be used to commission fixed assets worth 627,000 million roubles, 21 per cent more than under the 10th Five-Year Plan, which will make it

possible to renovate them by a third. Such a big increase in the commissioning of fixed assets made it necessary to slash the number of construction projects and concentrate manpower and resources on major near-completion projects, as well as on the reconstruction and retooling of operating plants.

The sectoral pattern of investments, envisaged in the current plan, accentuates the further improvement of proportions between various sectors of the economy, the early removal of difficulties which have emerged in the past few years with the provision of some products and services, and the attainment of stable growth rates in the future. Priority is given to fuel and energy, structural materials, mechanical engineering, and the agro-industrial complex.

The 26th CPSU Congress stressed the need for the priority channelling of investments into the reconstruction and retooling of operating enterprises. Reducing the demand for manpower, funds spent for these purposes pay for themselves much quicker than those invested in new construction. That is why under the 11th Five-Year Plan, investments in reconstruction and retooling schemes will grow by 21.2 per cent and their share in the investments earmarked for industrial development will make 32.5 per cent as against 29.2 per cent in the previous five years.

x                    x                    x

Scientific and technical progress is the main factor behind the intensification of production. At present scientific and technical progress accounts for nearly 75 per cent of the increase in labour productivity. The task is to ensure the further growth of the role scientific and technical progress plays in expanding and extending the intensification of production. Each sector has received assignments for the introduction of the latest achievements of science and engineering. Organisational links between science and production are being improved and the production and technical basis of science itself is being built up to accelerate this process.

Soviet scientific and engineering achievements have met with wide recognition in the world. The Soviet people take pride in the successes they achieved in space exploration, the manufacture of unique radio and optical telescopes, power generating units, heavy-duty wheel excavators and rolling mills, and the development of new efficient materials and production processes. Soviet inventors have become markedly more active. In 1980 alone the Soviet Union introduced 24,000 inventions in production.

The Soviet Union embarked upon the 11th Five-Year Plan with a tremendous scientific and technical potential thanks to which it can tackle, without outside assistance, major scientific and engineering problems crucial for its economic progress.

Ensuring the more efficient production and utilisation of fuel and energy is a pressing scientific and technical problem. Under the 11th Five-Year Plan, the USSR will develop efficient atomic reactors with a unit capacity of up to 1.5 million kw and up to 2 million in the next five-year period. The Soviet Union leads the world in the development of power generating units of this capacity.

The commissioning of the world's biggest 600,000 kw fast neutron reactor at the Belayarsk atomic power station marked a major step forward in increasing atomic electricity output. Apart from generating electricity, such units breed nuclear fuel, thus raising the efficiency of natural uranium utilization by tens of times. Reactors of this type with a unit capacity of 800,000-1,600,000 kw will be blueprinted under the current Five-Year Plan.

Much attention is devoted to evolving more economical methods of electricity generation, particularly to the MHD conversion of thermal energy into electricity. MHD generators raise the efficiency of thermal power stations by 15 or 20 per cent. To increase the efficiency of its power stations, the Soviet Union pioneered the development of major semi-industrial units incorporating MHD generators. They have been in operation for a long time.

Basic research accomplished by Soviet physicists has made the USSR the world's first country to begin building atomic heat-and-power stations and atomic boiler plants. The superconductivity phenomenon will help design machines, whose weight and dimensions will make half or third of the corresponding figures for classic machinery. To transmit electricity from Eastern Siberia and Kazakhstan, the USSR has embarked upon the construction of unique 1,150,000 V AC and 1,500,000 V DC tension lines which have no analogues in the engineering solutions they incorporate.

The Soviet Union is the first country in the world to produce "filled" polymers. Their production will save us considerable quantities of oil thanks to the introduction of from 50 to 90 per cent of filler into a polymer. Perlite, kaolin, chalk, cement dust and other materials are used as fillers. The trials of the first semi-industrial consignments of "filled" polymers have yielded good results. With large-tonnage production, they will be extensively used to make heat insulation and finishing materials, light structural elements, pipes and household articles. Calculations show that "filled" polymers will save the country hundreds of millions of roubles in investments a year and, most importantly, reduce the spending of oil and scarce steel pipes.

Today the main factor of the further acceleration of scientific and technical progress is the development and extensive application of fundamentally new technologies. A new industry, power metallurgy, was created in the Soviet Union as a result of basic research conducted by Soviet scientists over many years. Materials and products made from metal powders raise the reliability, and increase the life, of components exposed to high speeds, temperatures, loads, aggressive media and irradiations. However, the main advantage of the new technology is that it raises labour productivity and reduces the spending of metal. A thousand tonnes of products made from metal powders saves the country about 1.5 million roubles. Compared with the 10th Five-Year Plan, in 1981-1985, the output of metal powders will grow by more than three times.



The latest methods of coating machine components and tools spell a considerable saving of funds for the economy. Machinery and tools go out of action most frequently not because of breakdowns, but as a result of their friction surfaces wearing down. Soviet scientists have developed a technology to produce friction units from a common cheap material and apply a thin durable coating only to their operation surfaces. Such dusted-on coatings can also be used to restore worn-down components. Spending on the restoration of worn-down components by this method averages about 20 per cent of the cost of new parts.

That is why measures have been drafted sharply to increase the application of these methods, particularly, the vacuum-plasma technology of applying durable coatings. Thus, we plan extensively to introduce Bulat units, with the plasma accelerator employing a titanium electrode, being their main working element. Evaporating at a very high temperature, titanium interacts with nitrogen and settles on components as an even thin film. The wear resistance of the cutters treated by this method is from 3 to 6 times greater than that of standard tools. The vacuum-plasma technology is used to apply different kinds of coatings.

Technical progress and the intensification of production in all sectors of industry decisively depend on the advance of mechanical engineering. L.I. Brezhnev stressed in the report he delivered on behalf of the CPSU Central Committee to the 26th Party Congress that the rock bottom of scientific and technical progress is the development of science. However, it is primarily mechanical engineering that swings the door wide open to the new. Mechanical engineering should turn without delay all progressive scientific and engineering ideas into efficient and reliable machines, instruments and production lines. Truly revolutionising opportunities are being opened by the development and introduction of mini-electronic controllers and industrial robots. They should be applied on the greatest possible scale.

Under the 11th Five-Year Plan, the USSR will introduce over 2,700 automated production control systems, and 7,300 computing complexes based on micro-processors and mini-computers. Under the current five-year plan, the output of automatic manipulators (industrial robots) will grow almost by eight times, compared with the past five years.

The USSR has developed many engineering products without a parallel in the world. Among them is the Sever large-diameter pipe welding unit developed by the E.O.Paton Institute of Electric Welding and produced by the Ministry of Electrical Engineering. It takes 20 minutes for this automatic unit to complete the welding of a pipe joint. With manual welding, a skilled operator requires two shifts to weld such pipe joint.

The solution of complicated social and economic tasks under the 11th Five-Year Plan and beyond it makes it necessary to improve the system and methods of economic management. Measures are being implemented, set forth in the resolutions of the CPSU Central Committee and the USSR Council of Ministers, to improve the performance of all managerial links, planning in the first place, through increasing the role of long-range plans, the extensive application of goal-oriented programmes and the introduction of a system of grounded technical and economic quotas and standards.

Great importance attaches to the elaboration of a system of goal-oriented comprehensive programmes which will become part and parcel of state long-range plans. The following three types of such programmes will be prepared: national socio-economic programmes, scientific and technical programmes, and programmes for the development of territorial-industrial complexes.

A total of 14 socio-economic and territorial goal-oriented comprehensive programmes were being prepared while the current Five-Year Plan was being drafted. Special attention was devoted to the two largest and most important programmes dealing with foodstuffs and energy. The Five-Year Plan also provides for the further phased implementation of the long-term comprehensive

programme for the development of transport, the programmes for the formation of the West Siberian territorial-industrial complex, the economic development of the zone adjacent to the Baikal Amur Railway, the development of agriculture in the non-black soil zone of the Russian Federation, etc.

Along with socio-economic and territorial programmes, the Five-Year Plan covers the basic assignments for 170 scientific and technical programmes, including those for over 40 goal-oriented comprehensive programmes encompassing a wide range of undertakings relating to the development of the fuel and energy and agro-industrial complexes, mechanical engineering, the chemical industry, metallurgy, transport, the health services and the production of consumer goods. The implementation of the scientific and technical programmes is to save 16,500 million roubles in 1985. Research will be organised in the major promising directions of science to create the scientific foundation for future work.

In accordance with the long-term course towards the fullest possible satisfaction of public requirements, the emphasis is laid on the further growth of the standards of social planning and the validity of comprehensive plans for the social development of enterprises, cities and regions. The personnel of enterprises extensively use their managerial rights to promote the success of this work. The Soviets of People's Deputies become increasingly involved in shaping social plans and in promoting the more efficient use of the resources of various regions.

Great attention is devoted to the institutional improvement of management. Under the previous five-year plan, much was done to further the concentration and specialisation of production in industry and produce control master-schemes for the ministries engaged in building and construction. The institutional improvement of management has also started in the non-production sphere, particularly in trade, utilities and everyday public services.

The structure of agricultural management is being improved and agro-industrial integration promoted. Whereas at the begin-

ning of the 9th Five-Year Plan we had 4,500 inter-farm enterprises and organisations, their number has doubled today. The further application of this form of integration will ensure the better storage of farm produce and the timely delivery of crude products to processing enterprises.

Under the 11th Five-Year Plan, the USSR will continue improving the institutional aspects of economic management at all levels. The institutional setup of management should fuller correspond to the increased scale of production, create conditions for its intensification and for promoting the efficiency of the economy as a whole. The organisation of the management of groups of interdependent sectors, territorial-industrial complexes and inter-sectoral enterprises will be improved.

The successful fulfilment of the plan also demands a strict adherence to production schedules and contracts and high labour discipline at every level. To ensure this, it will be necessary to work out and implement everywhere an effective system of stimuli to encourage people to work as efficiently as possible and steadily to raise the quality of output. The economy as a whole must be keyed to the demand of the 26th CPSU Congress -- "an economy must be economical."

(Partiinaya Zhizn No.6,1982. Abridged.)

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## ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

### STATUTE ON INCENTIVES FOR SAVINGS OF MATERIALS

Moscow EKONOMICHESKAYA GAZETA in Russian No 15, Apr 82 p 8

[Regulation Governing the Procedure and Amounts of Direct Deductions into the Economic Incentive Funds for the Saving of Material Resources in 1983-1985 in Industry as approved by the USSR Gosplan, the USSR Ministry of Finances, the USSR State Committee for Labor and Social Problems and the AUCCTU on 31 December 1981]

[Text] The current regulation has been worked out on the basis of the Decree of the CPSU Central Committee and USSR Council of Ministers of 30 June 1981, No 612 "On Strengthening Work in the Area of Saving and Rationally Utilizing Raw Product, Fuel, Energy and Other Material Resources" and is aimed at strengthening an economic interest on the part of the ministries, departments, production associations and enterprises in effectively utilizing material resources.

The regulation envisages the following principles for setting the amount of the material incentive fund and the fund for sociocultural measures and housing construction (the incentive funds) upon the level of material outlays on producing the product.

In the five-year and annual plans limits of material expenditures (in monetary terms) per ruble of product (work) are to be set for the ministries, departments and production associations (enterprises). With a reduction of material expenditures in comparison with the approved limit using a portion of the savings obtained from this direct deductions are to be made into the incentive funds according to the established scale.

In exceeding the limit of material expenditures, deductions into the incentive funds are to be reduced according to the established scale, but by not more than 25 percent of their planned amount for the corresponding year of the five-year plan.

The direct deductions for the planned-loss production associations (enterprises) are paid to the incentive funds from above-planned profit. The above-planned profit for the ministry (department) as a whole, the above-planned profit of the individual production associations (enterprises) as well as the reserve of the ministry (department) for profit or incentive funds can be employed for these purposes.

For the planned-loss and low-profit production associations (enterprises), the direct deductions are made from the actual reduction in losses in comparison with

the plan as well as from the above-planned profit for the ministry (department) as a whole, the above-planned profit of the individual production associations (enterprises) and the reserve of the ministry (department) for profit or incentive funds.

For the ministries and production associations (enterprises) which have been converted to the normative profit distribution method, the amount of above-planned profit left at their disposal is determined without considering the direct deductions into the incentive funds for savings from reducing material expenditures in comparison with the set limit.

In monitoring the observance of the correct ratios between the growth of labor productivity and average wages, as is stipulated in Point 8 of the decree of the USSR Council of Ministers of 30 September 1968, No 778, and in comparing the related growth rates of labor productivity and average wages at the production associations (enterprises) which do not have wage rates set per ruble of product, average wages are calculated without considering the total bonuses paid for the saving of material expenditures in accord with the current regulation.

I. The Procedure for Determining the Amounts of Direct Deductions into the Incentive Funds for Savings Due to Reducing Material Expenditures in Working Out the Indicators of the Annual Plan

1. In working out the indicators for an annual plan, the incentive funds of the ministries and production associations (enterprises) are increased (reduced) depending upon the savings (overexpenditure) of material outlays in the annual plan in comparison with the limit set in the five-year plan.

2. The savings (overexpenditure) of material outlays is determined in comparison with the total limit on material outlays. The total limit on material outlays is established by multiplying the approved limit of material outlays expressed in kopecks per ruble of product (work) by the volume of product (work).

The savings (overexpenditure) of material outlays for an annual plan is set in the following procedure:

a) The limit of material expenditures expressed in kopecks per ruble of product (work) according to the appropriate year of the five-year plan is multiplied by the volume of product (work) for the annual plan;

b) The limit of material expenditures expressed in kopecks per ruble of product (work) for the annual plan is multiplied by the volume of product (work) also according to the annual plan;

c) The difference is found between the designated amounts. A positive sign for the difference means a savings of material expenditures in comparison with the limit while a negative sign of the difference means an overexpenditure of material expenditures.

3. The total increase (reduction) in the incentive funds depending upon the savings (overexpenditure) of material outlays in comparison with the total limit is set according to scales which determine the specific portion of the savings (overexpenditure) of material outlays by which the incentive funds are to increase (decline).

The designated scales are worked out on the basis of the ratio of the total wage fund to the total material expenditures according to the plan for the base (1980) year and the numerical values of these scales are differentiated considering the proportional amount of the preassembled articles in the total amount of material expenditures. For the production associations (enterprises) these scales are drawn up on the basis of the Standard Scale for Calculating the Increase (Reduction) in Incentive Funds for Production Associations (Enterprises) Due to Savings (Overexpenditure) of Material Outlays in Comparison with the Approved Plan and are approved by the USSR ministry or the Union republic ministry jointly with the appropriate trade union committee with the approval of the USSR Gosplan or the Union republic gosplan.

4. The total savings (overexpenditure) in material outlays by which the incentive funds are to be increased (reduced) is allocated between the material incentive fund and the fund for sociocultural measures and housing construction proportionately to their amounts set for the corresponding year of the five-year plan.

## II. Procedure for Determining the Amounts of Direct Deductions into the Incentive Funds from Savings Obtained Due to a Reduction in Material Expenditures Over the Year for the Production Associations (Enterprises)

5. During the year, the incentive funds of the production associations (enterprises) are increased (reduced) depending upon the savings (overexpenditure) of material outlays in comparison with the limit set in the annual plan.

6. In calculating the deductions for the incentive funds due to savings obtained over the year because of reduced material outlays in comparison with the limit set in the annual plan, the numerical values of the scale approved in accord with Point 3 of the current regulation are applied to the total savings reduced by the amount of funds going for bonuses to the employees of the production associations (enterprises) for savings of specific types of materials. In the event that the total of this money equals or exceeds the amount of the savings of material expenditures, the direct deductions are not made into the incentive funds.

7. The increase (reduction) in the deductions into the incentive funds for savings (overexpenditure) of material outlays, in comparison with the limit set in the annual plan, is carried out quarterly. The total savings is calculated in a running total from the start of the year. Also calculated in a running total is the total amount of direct deductions from the savings in material expenditures going into the incentive funds. Here previously made deductions are subtracted.

8. In comparing the results of the year for the total incentive funds deducted by the production associations (enterprises) with the total incentive funds calculated according to the operating results of the ministry (production association), as is stipulated by Point 41 of the Basic Regulations Governing the Formation and Expenditure of the Material Incentive Fund and the Fund for Sociocultural Measures and Housing Construction (Incentive Funds) in 1981-1985 in Industry as approved by the USSR Gosplan, the USSR Ministry of Finances, the USSR State Committee for Labor and Social Problems and the AUCCTU of 5 March 1980, No YaR-6-D, the total by which the incentive funds of the production associations (enterprises) have been increased is excluded from the calculation.

9. The current regulation is to come into effect on 1 January 1983.

METHODS FOR INCLUDING NONPRODUCTIVE SPHERE IN UNITED STATES NATIONAL ACCOUNTS

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/Article by A.V. Telyukov: "Methods for Including Nonproductive Sphere in the System of United States National Accounts"/

/Text/ This article contains descriptions of the methods for employing the national accounts of the U.S.A. for computing the cost indicators for output in the nonproductive sphere. The possibilities for using the national accounts for analyzing the resource support for service branches are evaluated. The results of experimental computations which describe the American methods of synthetic accounting for resources and the results of the development of the nonproductive sphere and material production are furnished. A maximum amount of attention is focused on the balance methods of U.S.A. macro-economic statistics, an analysis of which is of definite interest to Soviet planning-statistical practice.

An increase in the proportion of services in the total fund of consumer benefits constitutes one condition for improving the structure of national consumption. The realization of this condition in national economic planning requires a more complete reflection of the output of the nonproductive sphere in the system of macro-economic indicators, in summary form describing the dynamics of national economic development, the volume of resources involved in the economy and the effectiveness of their use.

For the purpose of solving this problem, considerable interest is being displayed in a critical review of the statistical practice of industrially developed capitalist countries and, in particular, in the reflection of the nonproductive sphere in the U.S.A. system of national economic indicators<sup>1</sup>.

Soviet economic literature has already analyzed foreign experience in measuring the output of service branches (see /1/ in particular). This analysis contained two interesting aspects: 1) a review of basic definitions providing the foundation for regular statistical practice in measuring the output of the nonproductive sphere in the U.S.A. and other countries (in particular, methods for determining the value of services, which is used by the Department of Trade and Industrial Economics of the U.S.A. when computing the VNP /gross national product/;



2) scientific systematization and critical review of the views of western economists regarding the conceptual aspect of the problem (initial principles for the measurement of services).

The study of statistical methods being employed in the U.S.A. for obtaining an overall evaluation of services should ideally be continued. Its importance is highlighted by two factors: first, a critical analysis of foreign methods for measuring services can play a definite positive role in improving the planning methodology for nonproductive branches of the Soviet economy; the mutual (for several countries) adaptation of the methods for computing services will serve as a starting point for inter-country comparisons in the nonproductive sphere. The need for such comparisons has been pointed out repeatedly in literature [2-4].

Prior to examining the essence of this problem, allow me to make a number of comments of a methodological nature.

1. In the given context, the key concept "nonproductive sphere" conforms to the interpretation approved in Soviet economic literature and in planning and statistical practice. We proceed from a division of the national economy into production and nonproduction spheres and we view the latter as a complex of branches which combines "types of activities, during which material wealth is not created" [5], as an indispensable component part of national economic turnover, as a field for the use of productive labor and as a sphere of activity for socialist public-productive relationships<sup>2</sup>, directly associated with achieving the final goal in the functioning of the productive forces of a developed socialist society.

The nonproductive sphere of the U.S.A. is studied from an especially utilitarian standpoint -- as an object of statistical accounting. From such a narrow approach, the vital (from the Marxist standpoint) aspects of the bourgeois interpretation of the essence of services do not upset the correctness of an applied analysis and they do not hinder a study of individual American statistical methods, in the interest of employing their individual conditions in Soviet planning and statistical practice.

2. In analyzing the possibility of reflecting the output of nonproductive branches in synthetic indicators of economic development and in accordance with the goal of the study, we concentrate attention on the cost measurements for the production of services. Thus we proceed on the basis that "unity in the economic resources used for the production of services in individual branches of the sphere of services ensures their comparability from the standpoint of expenditures consumed" [1, page 140].

An expenditure-cost evaluation of services, which conforms with modern statistical practice at its macro-economical level, serves as a necessary prerequisite for national economic and inter-branch analysis of the nonproductive sphere, in the capacity of a single branch complex. However, it must not be forgotten that accounting for output based upon the expenditure principle is in conflict with the requirement for effective expenditure of resources and in this sense it cannot be considered an adequate statistical reflection of modern management conditions. This is why, when studying the system of U.S.A. national accounts or any other instrument for national economic accounting of resources and the results of

development of the nonproductive sphere, one must bear in mind the advisability of examining a number of basic principles associated with reflecting services in accordance with the amount of expenditures required to produce them.

This same opinion is held by western economists. For example, M. Reder notes that "when measuring the output of medical services by evaluating the amount of any series of expenditures or their functions, no possibility exists of determining the differences in effectiveness in the use of these expenditures for rendering services" /14/. A critical evaluation of the modern status of statistics was provided by T. Hill and in this connection he wrote: "An evaluation of the majority of services according to cost and real indicators remains primitive and based upon rudimentary methods. Owing to a weak understanding of the nature of the physical units in which services can be measured, the value characteristics for these services are indistinct and indefinite. Value -- the most fundamental concept of economics -- remains senseless until such time as the real units of measurement by means of which it can be employed become available" /15/

In agreeing with the authors of the mentioned opinions, we note that expenditures, as an object of cost accounting in the nonproductive branches, do not fully meet the aims of a statistical description of the sphere of services, which derive from the task of raising its effectiveness. Work concerned with improving the methods for measuring services must not be directed towards realizing an isolated improvement in the real and cost indicators for output in the nonproductive sphere or to opposing some against others, but rather it should be aimed at searching for real measurement instruments deemed adequate for the consumer effect of services and which lend themselves to a cost or to another just as universal expression<sup>3</sup>.

3. The concept of final production is used by us in conformity with material wealth and services in the same sense -- as the value of the net product and annual depreciation of the fixed capital. Thus the specific term "final production of services," which has become firmly established in Soviet literature /6, page 73; 10/, is eliminated. This term identified the final and gross product of the nonproductive sphere. The gross output of services is understood by us to mean the total value of current material expenditures and of the final output of corresponding branches. The terms under discussion, in terms of their content, have been standardized for the USSR and the U.S.A.

\* \* \*

Modern statistics on the national economy of the U.S.A. exist in the form of an integrated system of national accounts, the purpose of which is to furnish an all-round description of the country's economic development, with the singling out during the economic process of its individual functions (production, distribution, consumption) and agents (private enterprise and governmental sectors, household economy). The conceptual basis for the American system of national accounts consists of an interpretation of economic activity as activity concerned with the creation of income. It thus follows that the distribution relationships are viewed as a form of production, with the different stages of the reproduction process being identified with two of its extreme aspects -- production and consumption. In other words, the subject of the reflection in the national accounts is movement of a flow of income, that is, its accounting in accordance with the formation and elements of the final demand.

The composition of the national accounts is viewed in two ways. In the narrow sense, its component elements include an account for the national income and product, represented by 5 summary and 80 auxiliary tables<sup>4</sup> and in a broader sense -- an inter-branch balance for the production and distribution of social product, trade and payment balances and so forth. The existing system of national accounts was formed in 1958. The diverse amount of statistical information embodied in it, despite all of the shortcomings, is of interest for evaluating the rates and proportions for economic development in the U.S.A. and for revealing the patterns in economic growth and its most important factors.

The analysis of the existing methods for including the output of the nonproductive sphere in the U.S.A. in the national economic indicators is based upon the development of the following three aspects of the problem: first, evaluations of the methods for employing the national accounts for computing the cost indicators for output in the nonproductive sphere and its branches; secondly, uncovering opportunities for using the national accounts for analyzing resource support for the service branches; thirdly, an analysis of the location of the nonproductive sphere in the macro-structure of the economy, in accordance with the analytic materials not included in the range of official statistics on the national accounts.

The indicators for development of the nonproductive sphere are found mainly in the account for national income and product and in the inter-branch balance. The first appears as a balance table which describes the sources for the formation of the VNP [gross national product], by types of income and its use by elements of final demand. From a quantitative standpoint, the most important factor of final consumption of the VNP is the private consumption expenses which reflect the expenditures of the population for purchasing goods and services. This indicator contains a cost evaluation of the overall volume of nonproductive services paid for, in accordance with the consumption expenditures for their acquisition. The volume of free services is determined based upon budgetary statistical materials. It conforms to the appropriations for the federal government, the state governments and the local organs of government for education, the housing and municipal economy, communications and public health. Governmental expenses for pertinent needs are accounted for in that portion in which they are not covered by budgetary revenues for similar items and are not associated with pension or other payments for social insurance. [16-17]. In the process, payments from the social insurance funds which are not redistributed through the organs of state government and which are used in the manner of self-insurance within companies or for privately ensured organizations and philanthropic funds are overlooked. The volume of services using funds from the mentioned sources is negligible, with the exception of public health, where these funds amount to more than 40 percent of the expenditures for medical services "not paid for" by the consumer<sup>5</sup>. The amounts of the corresponding appropriations are presented in composite statistics on expenditures for public health by sources of financing<sup>6</sup>.

A simpler method can be employed for obtaining a rather reliable evaluation of the volume of free services in branches which account for 96-98 percent of the overall volume of such services. Towards this end, the consumption expenditures of the population for acquiring the respective services should be deducted from the total expenditures for public health and education (state and private).

On the whole, the possibility of obtaining a monetary evaluation of nonproductive services based upon national income and product is rather good. However, the

method described has its own drawbacks, all of which serve to limit the possibility of it being used for analysis. These drawbacks are as follows:

- an expense evaluation of services according to the amount of consumption expenditures provides an idea only as to the overall volume of services used and does not make it possible to evaluate the material expenditure amounts or the net output of the nonproductive sphere. In particular, this is needed for computing the proportion of nonproductive services in the national income of the U.S.A. and for translating the latter in terms of the methodology adopted in the USSR;

- the nomenclature of the private consumption expenditures are incomplete and lacking in detail. This causes difficulties when dividing up the domestic services for the population into the productive and nonproductive types and also when determining the clear limits of other branches in the nonproductive sphere;

- a two-stage evaluation of free services and services requiring payments presupposes the use of diverse types of initial information obtained from several sources, between which it is not always possible to make complete comparisons. Thus the private consumption expenditures (services requiring payments) are computed for the calendar year, while the budgetary statistics are organized according to the fiscal year, which begins on 1 October. Finally, the annual data on use of the social insurance funds is made available on 1 July.

Great opportunities for a cost evaluation of the output of the nonproductive sphere are embodied in the inter-branch balance for the production and distribution of social product. The vertical and horizontal components of the balance correspond to the debit and credit of the account for national income and product and conform to the overall logic of the national accounts as an instrument for reflecting final income according to the sources for formation and the directions of use. At the same time, the statistics of the inter-branch balance are more comprehensive. The data for the first quadrant furnishes an exhaustive idea as to the intermediate product of the productive branches and the volume and structure of material consumption in each one of them. As a result, the inter-branch balance is the only form in the U.S.A. for a statistical reflection not only of the VNP, as a result of the final production of material wealth and services, but also of their total production.

The specific possibilities for using the inter-branch balance for analyzing the nonproductive sphere are determined by the accepted interpretation of services as a substance of cost, a product of labor productivity and an element of national income and social product. In conformity with this, the branches for nonproductive services, together with the material production branches, are examined in the first quadrant, that is, in the system of inter-branch relationships for the production of goods. The second quadrant reveals the structure of the final product of the service branches, in accordance with its use for covering private consumption expenditures, capital investments and governmental purchases. As a rule, the consumption of services by the federal government, state governments and local organs of government is not final and serves only as a means for the redistribution of services among channels for services without charges. The process of forming the final income of members of society, including hired workers and employers in the nonproductive sphere is presented in the third quadrant. This data (minus the amortization fund and non-factor income) ensures the inclusion of the nonproductive sphere in national income.

A most important advantage of an inter-branch balance, with regard to the national income and product, is that it makes it possible to deduct material consumption from the gross production of services and to determine the conditionally-net product of the nonproductive sphere, for subsequent computation of its proportion of the final production of material wealth and services. An analysis of material consumption by volume and commodity nomenclature makes it possible to reveal the trends in technical progress in the nonproductive sphere and the tendency towards its intensification by means of quantitative growth and improvements in the structure and organizational forms for the use of machines and equipment and also in current material expenditures.

The inter-branch balance serves as a rather reliable source for determining the limits of the nonproductive sphere. The appropriate computations are based upon the data contained in the balance on the proportion of private consumption expenditures in the overall intermediate and final consumption of the output of the branches and also the proportion of intermediate consumption of services (communications in particular) by enterprises of the nonproductive sphere. The conversion of the respective specific indicators into value indicators makes it possible to separate out from the American branches those services (many of which include services for the population and services for material production) and output relating to the nonproductive sphere<sup>7</sup>. A monetary evaluation of the free services can be added to the data obtained. This evaluation, which is partially contained in the balance itself (procurements by the state governments and local organs of government in accordance with the branch "education"), can be determined based upon budgetary statistical materials and data on the use of the social insurance funds (irrevocable appropriations from governmental budgets and private social insurance funds for public health, education and the development of other nonproductive sectors). The net output of free services in the governmental sector is fully taken into account in the balance. It answers for the output of a "fictitious" sector "overall administration," which reflects the total amount of wages for employees of state institutes and non-profit state enterprises (schools, hospitals and so forth). The wages for workers in the nonproductive sphere are computed based upon the wage fund for the governmental sector and data on its structure.

An indispensable element in a monetary evaluation of services is the work of household servants, of which there are 1.16 million in the U.S.A.<sup>8</sup>. The complications involved in accounting for the material assets of households limit an evaluation of the "marketable" output of this sector to merely the wages paid to a hired servant. It is taken into account in the conditional balance sector -- households.

The computations of the overall size and by-element structure of the cost of services, in accordance with the data of an inter-branch balance for the production and distribution of social product, have a number of shortcomings, caused by imperfections in the balance itself and its limited comparability against other statistical forms of the system of national accounts.

First of all, an artificial division of the national economy into sectors (private ownership, governmental, household) is retained in the inter-branch balance. Here the governmental institutes are presented as a special sector "general administration," for which neither horizontals nor verticals were developed. As a result, it is

impossible to reveal the volume and structure of intermediate consumption of services at state institutes or establish their branch structure or proportion of the overall volume of output by the governmental sector. Sectors which reflect the results of the economic activity of commercial governmental enterprises do not describe the structure of their output and they also require additional statistics for evaluating the nonproductive services (mail service, municipal economy).

Secondly, the inter-branch balance is published during individual years in percentile indicators and not in value indicators. Their use for a monetary evaluation for the output of services requires data on the value of the VNP by branches of production. The branch structure of the VNP in the tables which supplement the account for national income and product and the list of production branches differ from one another substantially in terms of the degree of detailing and also with respect to the grouping principles. The mutual adaptation of the two branch lists lowers the accuracy of the computations, caused by the data in the inter-branch balance.

Thirdly, the national income and product account and the inter-branch balance should not be used for carrying out a mutual check on the reliability of the computations of the output of the nonproductive sphere, since the structure of the private consumption expenditures differs basically from the branch structure of the balance. In the first instance, the services are classified according to their consumption purpose, that is, from a product standpoint, and in the second -- they are presented as technologically "pure" branches of production. The need for regrouping the consumption wealth in conformity with the branch nomenclature for production was noted long ago /20/. However, it was not until recently that it was reinforced by specific efforts in this particular area.

Fourthly, the "accounting" inter-branch balance is prepared once every 4-5 years and its materials are published 7 years later. This precludes the possibility of using the balance for operational and timely analysis of the nonproduction sphere, distinct from the national income and product accounts which are published annually in detailed form.

The methods described for computing the output of the nonproductive sphere and the ratio between its products are shown in Table 1. It should be emphasized that neither of the proposed methods is being carried out independently: the data of the inter-branch balance can only be utilized jointly with the national income and product accounts (structure of the VNP, governmental receipts and expenditures) and the conversion over from gross output of services to final, in the computations based upon the national income and product accounts, requires balance data on the conditionally-net output of the branches.

In 1972, the final output of the nonproductive sphere of the U.S.A., computed using the inter-branch balance, amounted to 329 billion dollars (see Table 2), or 28.4 percent of the VNP, corrected for the amount of amortization in the governmental sector and the "profits" in the structure of standard rent for house owners. The gross production of services was evaluated using two methods: computed on the basis of data from the national income and product accounts, it amounted to 393.2 billion dollars and using the data from the inter-branch balance -- 418.3 billion dollars.<sup>9</sup> The divergence of 6.4 percent in the latter two indicators is explained by failure to fully take into account the output of services based upon data from the national

income and product account, in turn the result of insufficient detail, within the framework of this account, on the functional structure of the private consumption expenditures.

TABLE 1

Inclusion of the Output of the Nonproductive Sphere in the  
National Accounts of the U.S.A.

Method of Computation	Sources of Data			
	Services Requiring Payment		Free Services	
	Services in the Private ownership sector	Services in gov't sector	Services in the governmental sector	Services in the private ownership sector
Based upon national income and product accounts	National income and product account -- value structure for private consumption expenditures		Accounts for gov't receipts and expenditures -- funct. structure of budgetary appropriations	Public health statistics -- medical services using resources of private insurance programs and funds
Based upon inter-branch balance for production and distribution of output	Value inter-branch balance -- distrib. of output of intermediate consumption	Account for governmental receipts and expenditures -- functional structure of budgetary appropriations		

An analysis of general economic development on the whole and of the development of the nonproductive sphere in particular requires not only an aggregate and branch evaluation of the output of services, but also the inclusion in the macro-economic indicators of the characteristics of resource support for the nonproductive sphere. A statistical analysis of current material expenditures, capital investments and of the use of labor resources in the respective branches makes it possible to control the process of creating value for services by influencing its individual elements.

The inter-branch balance is an effective instrument for a statistical study of current material expenditures in nonproductive branches. In accordance with current U.S.A. practice with balance computations, the matrix of coefficients of direct material expenditures includes the service branches in addition to the material production branches. This made it possible to compute the indicators presented in Table 3. In this instance, we use the term "current material expenditures" for two reasons. First of all, in addition to truly current consumption, the consumption of invested goods in the amount of their amortization is presented in Table 3. Secondly, an accounting for the nonproductive sphere in inter-branch relationships not only by verticals but also by horizontals (as suppliers of output) makes it possible to discuss not just material expenditures, but rather expenditures of material output and non-material services in the production of the output of branch-consumers<sup>10</sup>. The last two lines of the table make it possible to draw a conclusion that is very important from a theoretical standpoint. The creation of non-material forms of wealth -- this is a considerably more comprehensive process than simply the consumption of the output of material production. Forty

TABLE 2

Final Product of the Nonproductive Sphere in the U.S.A., in 1972, in billions of dollars

Branch of non-productive sphere	Services in private ownership sector requiring payment				Services of Governmental* Sector			Free services of the private ownership sector	Total, final prod. servs. (4+7+8)
	Branch of inter-branch balance		Final production of services	Items of Budgetary appropriations		Final production of services			
	No.	Description		No.	Description				
1	2	3	4	5	6	7	8	9	
Passenger transport	65	Transport and warehouse economy	12.30	42	Transport	3.26		16.20	
			12.30	50	Public municipal transport	0.64			
Non-productive communications	66	Communications, excluding radio and television	11.90	53	Mail services	0.42			
	67	Radio and television **	3.90						
Housing economy	71	Operations with real estate	66.17					16.22	
								66.17	
Municipal economy	68	Electric power, gas, water supply, sewerage networks	10.40	22	Sewerage-purification networks	2.06			
				47	Modernization of cities and municipal enterprises	2.03		14.43	
Services for population by bank and insurance institutes				51	Electric power supply				
	70	Finances and insurance	22.13	52	Water and gas supply			22.13	
Domestic services for population	72	Hotels; personal and repair services, excluding auto repairs***	6.30						
	73	Services for free enterprise sector	1.20						
	84	Household servants	16.70					24.20	



(Table 2 continued)

(Table 2 continued)										
Branch of non-productive sphere	Services in private ownership sector requiring payment				Services of Governmental * Sector				Free services of the private ownership sector	Total Final prod. servs. (4+7+8)
	Branch of inter-branch balance		Final production of services	Items of Budgetary Appropriations		Final production of services	Final production of services			
	No.	Description		No.	Description					
								No.		
1	2	3	4	5	6	4	8	9		
Public health and education (including social, political and non-profit scientific organizations)	77	Medical services, education, non-profit organizations	47.70	16	Education	73.04	Medical services by means of priv. insurance funds and organizations 21.46	165.82		
				21	Public health and hospitals	18.54				
				27	Hospital and medical servs. by means of soc. insurance	2.60				
				35	Education, prof. training of and services for veterans	2.41				
Culture and art Nonproductive servs.	76	Entertainment	3.90	38	Hospital and medical servs. for veterans	110.01	21.46	3.90		
			197.60					329.07		

\* The final value for services in the governmental sector contains a standard evaluation for the amortization of fixed productive capital. It is obtained based upon the proportion of amortization deductions in the net product of similar branches in the private ownership sector.

\*\* All output of the "radio and television" branch is included in the intermediate category in the intermediate balance and thus it is accounted for using data on the expenditures of the radio and television networks.

\*\*\* The "final output" of operations with real estate also takes into account the standard rent of owners of housing, which they would receive if they leased their dwellings. A number of researchers are inclined to view this rent as an especially fictitious income, which can be excluded from the output of services and the gross national product. We are of the opinion that this is not altogether true: the amount of standard rent reflects the expenses required for maintaining and operating the housing fund and in this sense it has true economic meaning. Only that portion of the rent which embodies the non-existent profit of the owners of housing is fictitious. And we excluded it, using data on the proportion of profit in the final product of the VNP branch "Operations With Real Estate."

\*\*\*\* Private services are divided into productive and nonproductive types in the standard proportion of 85 : 15.

/22, p 26, 34-35; 21, p 34-51; 23; 19, p 416; 24/

TABLE 3

Structure of Consumption of Material Output and Services in Branches of the Nonproductive Sphere in 1972 (private enterprise sector), in %

Branch-suppliers	Passenger transport and warehouse economy	Non-prod. sphere, excl. radio & telev.	Radio and telev.	Power, gas, water supply and sewer.	Branch-Consumers, Real estate ops.	Hotels, domest. servs. for pop.	Servs. enter. and organs.	Rest & entertain-ment	Public health, educa-tion, non-profit organs	Non-prod. sphere on the whole
Agricultural, forestry and fishing economy	0.1	1.8	0	0.4	2.2	0.3	0	8.0	0.8	1.2
Fuel	9.2	0.3	0.2	29.8	1.4	2.6	1.9	0.5	1.7	7.4
Ferrous and non-ferrous metallurgy (including pharmaceutical)	2.9	0.6	0.1	0.8	0.9	6.7	4.0	0.6	8.5	3.1
Machine-building and metal-working including: production of metal products and overall machine-building	7.7	13.7	2.8	1.1	0.2	10.5	8.8	2.3	4.4	3.9
electrical engineering and electronics industry	1.7	-	0	0.5	0.1	2.7	3.5	0.3	0.2	0.6
transport machine-building	0.8	13.4	2.3	0.5	0	5.1	2.6	0.1	0.3	1.3
instrument making	5.0	0.2	0.1	0	0	0.4	0.5	0.2	0.1	0.9
light and food	0.2	0.1	0.4	0.1	0	2.4	2.1	1.7	3.8	1.1
printing and publishing work	1.1	0.5	0.1	0	0.1	7.1	0.5	1.6	6.3	1.9
other branches	0.5	2.1	0.2	0.3	0.2	0.7	2.9	0.9	3.3	1.1
construction associated with repair and oper. of buildings and installations	0.6	0.8	0.2	0.2	0.2	6.9	2.7	0.8	2.3	1.1
transport and warehouse economy	7.9	18.7	0.7	7.3	32.8	2.9	1.6	3.2	5.3	14.2
communications	30.6	1.9	2.1	1.9	0.8	1.9	6.9	1.5	3.1	6.6
power, gas, water supply and sewerage	3.1	8.3	6.0	0.9	0.9	3.4	6.6	1.4	2.9	2.4
trade and public catering	2.0	4.1	2.8	46.0	2.7	5.0	1.9	2.5	6.4	10.8
motor vehicle repair and servicing	8.2	4.0	1.6	2.3	2.5	7.3	7.8	7.9	8.8	5.3
other branches in sphere of services, including:	5.5	2.0	0.3	0.6	1.0	3.2	4.2	0.9	1.1	1.9
finances and insurance	20.5	41.2	82.9	8.4	54.1	41.4	50.3	67.9	45.3	39.2
real estate operations	6.1	5.8	2.8	2.7	10.2	4.0	4.0	3.4	3.9	5.9
services for enterprises and organizations	4.3	12.5	13.6	2.1	35.6	16.3	15.2	15.1	18.3	17.7
total consumption of material output and services	0.9	19.1	14.3	3.1	7.6	12.7	25.7	12.7	26.4	11.1
of which:	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
consumption of material wealth	67.1	58.7	17.2	59.7	46.9	58.4	54.3	35.4	60.3	55.0
consumption of non-material services	32.9	41.3	82.8	40.3	53.1	41.6	45.7	64.6	39.7	45.0

\* Computed using /21, pp 60-61/.

five percent of the productive consumption of the branches consists of the consumption of products created in the nonproductive sphere. Thus the latter relies to a considerable degree, in its development, upon a closed reproduction cycle, thus demonstrating a relative "independence from the sphere of material production." In other words, the essence of the process of creating value in services in the intermediate consumption portion takes the nonproductive sphere beyond the level of distribution relationships and makes it an indispensable component of social production.

The balance methods for computing inter-branch expenditures in a total with the nonproductive sphere serve as a statistical prerequisite for the "stern" planning of material resources for the service branches and they make it possible to purposefully influence the quality of services by raising, in the structure of intermediate consumption, the proportion of those elements which affect the final results of the services to the greatest degree.

Within the system of U.S.A. national accounts, the investment process is presented as a function of final consumption. Capital investments in the private enterprise sector (gross internal investments) are singled out in the VNP structure according to the final use (credit of the national income and product account) and they correspond to the same item which is carried out in accordance with the debit account for savings and capital investments. As a result, a balance is achieved for the savings fund according to the formation (amortization of fixed capital, private savings, undistributed profit of corporations) and use of it for the procurement of individual types of wealth.

The principal criterion for the classification of capital investments in the national income and product accounts is their technological structure, with the singling out of individual types of machines and equipment, buildings and installations. The absence of a branch classification for capital expenditures and retention of the statistical "barrier" between the private enterprise and governmental sectors make it possible to compute the volume of investments in the nonproductive sphere in the U.S.A., using only some additional (branch) information obtained outside the system of national accounts. The appropriate computations revealed that during the 1971-1975 period the proportion of nonproductive branches in the overall volume of capital investments amounted to 46 compared to 43 during the 1966-1970 period; in 1976-1978, this indicator increased to 47.5 percent. The accelerated rates of nonproductive savings during the 1970's developed in the U.S.A. owing to an expansion in the scales of housing construction and the continuing equipping of other branches in the sphere of services with advanced types of equipment.

A most important resource of the nonproductive sphere is live labor. The consideration of man power in the flow of income, which is reflected in the national accounts, requires the inclusion in it of all types of material "compensation" for hired workers. Moreover, the number of those working on a hired basis can be found as the amount of the derivative of the wage fund (taking into account its rates) in individual branches of the national economy. Such a method for determining the number working in the nonproductive sphere is inadequate: in some service branches the number of owners of small and family enterprises is great and do not fall into the category of hired workers, nor are they reflected in

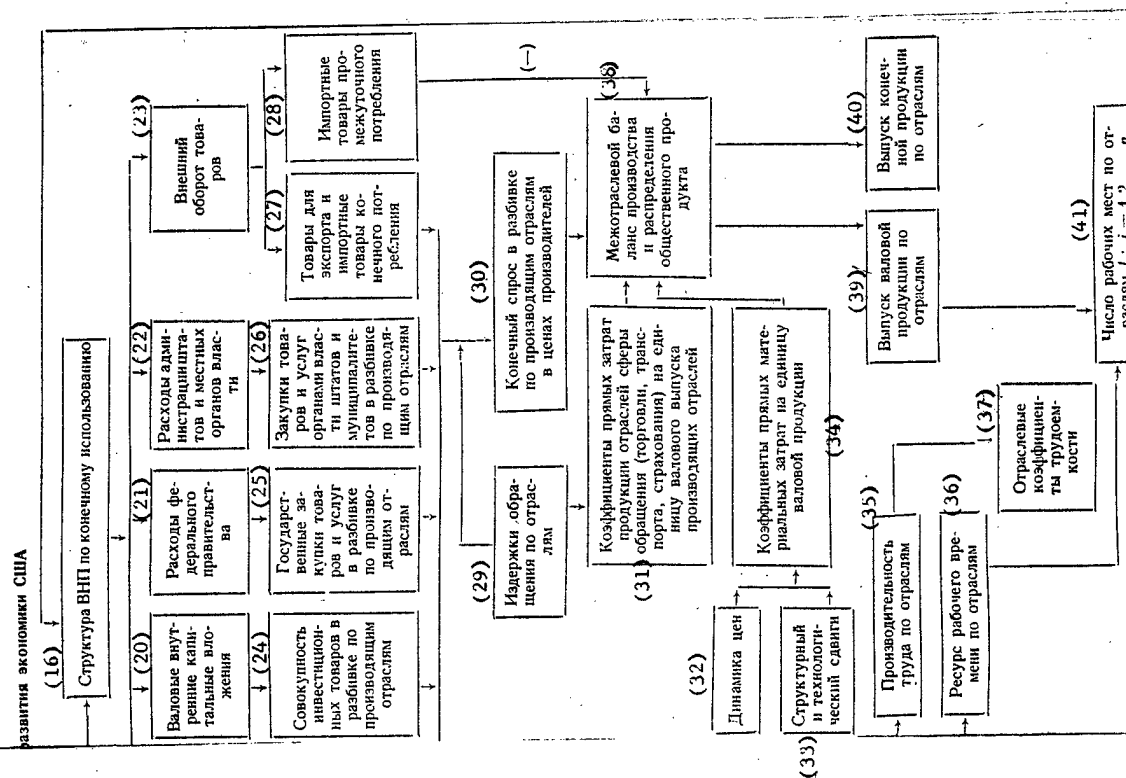
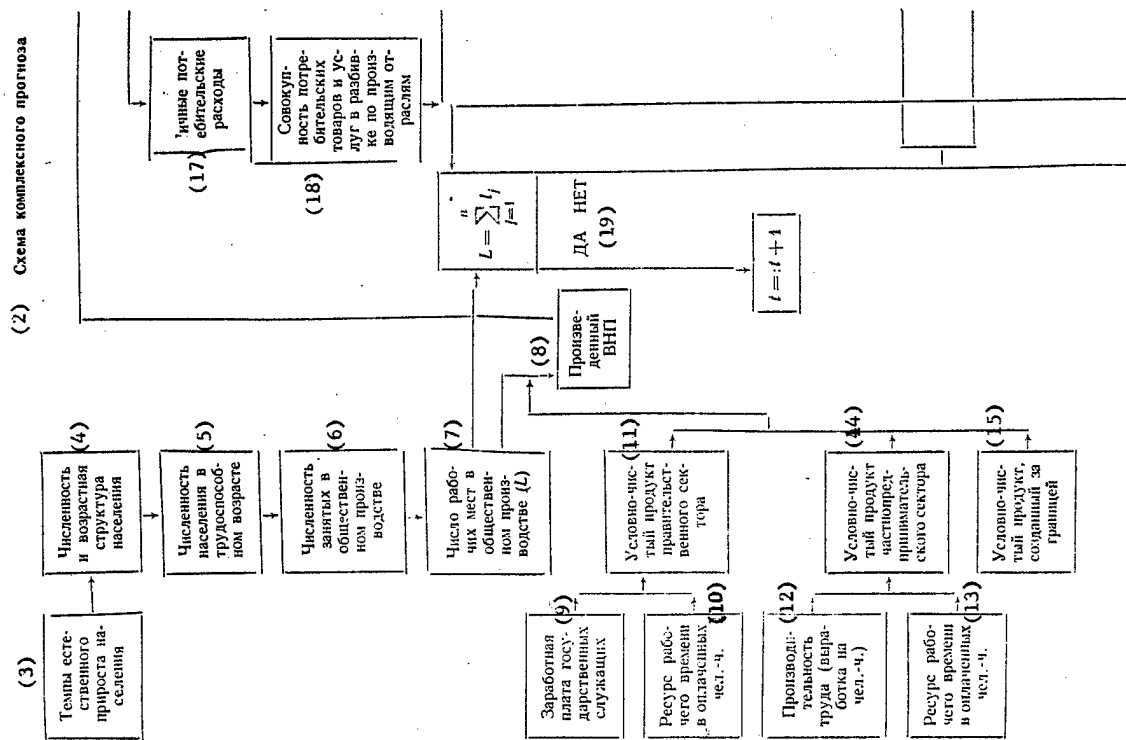
the wage statistics in the national income and product accounts. Nevertheless, these individuals work a large portion of time at their own enterprises and thus, from the standpoint of the total amount of labor expenditures for the production of services, they must be reflected together with the hired workers. Taking the above into account, the number of workers physically engaged in the mentioned branches of the nonproductive sphere in the U.S.A. amounted to 24.3 million in 1972. In 1972, the proportion of hired workers in the nonproductive sectors equalled 29 percent of all man-power in the U.S.A.

✓ On the whole, an analysis of the material and labor resources of the nonproductive sphere, using the American system of national accounts, is greatly hindered by the poor development, within the framework of this system, of the resource and branch aspects of the economic process. The balance methods for computing the economic resources became highly developed only in a reflection of the inter-branch production relationships. A labor resource balance and a fixed capital balance are lacking and thus the labor expenditures and investment process are presented in the form of aggregate macroeconomic indicators, which are not of great interest for analyzing (or even more, forecasting) structural improvements in the American economy. Additional difficulties are created owing to a statistical separation between the private enterprise and governmental sectors of the economy. In the final analysis, the mentioned shortcomings in the system of national accounts for the U.S.A. reflect the overall limited nature of bourgeois statistics. This is associated with the fact that a statistical computation under capitalism is not a prerequisite for economic control and it is thus deprived of practical orientation with regard to its own development.

The shortcomings in the system of national accounts for the U.S.A. motivate the American economists into carrying out improvements in the system of macroeconomic statistics. The methodology for developing the national accounts is being reviewed (see, for example, 25/) and efforts are being directed towards achieving more efficient use of the existing system of national economic accounting. The latter are based upon existing statistical forms and for the most part they are aimed at achieving more complete integration of the existing national accounts into a single system and enriching this system with new elements which supplement the characteristics of the American economic resources.

In connection with solving the mentioned tasks, a great amount of interest is being displayed in work carried out in the Department of Economic Growth of the Bureau of Labor Statistics of the United States Department of Labor. In 1975, a group of the bureau's workers, under the general direction of G. Alterman, completed a study which made it possible to furnish a complete statistical description for economic development in the U.S.A. during the period 1970-1985. We have presented the ✓ algorithm, for the forecast in the form of a diagram in which the demographic, socio-economic and scientific-technical forecasts for the development of the American economy have been synthesized and with the forecasts directed towards a single final goal -- a computation of the branch structure for those engaged in the national economy in 1985. Here the intermediate results include the planning of all labor resources, the volume and structure of the final product and the branch structure of gross production, the inter-branch balance and the balance in labor resources.

On the whole, the diagram as presented does not exceed the limits of the statistical algorithm. At the same time, the feedback realized on the basis of having balanced



Key for diagram:

1. Methods for including nonproductive sphere in national accounts of U.S.A.
2. Diagram of all-round forecast for United States economic development
3. Rates for natural increase in population
4. Size and age structure of population
5. Size of able-bodied population
6. Number engaged in social production
7. Number of working billets in social production (L)
8. VNP  $\overline{\text{gross national product}}$  produced
9. Wages of state employees
10. Working time resource in paid man-hours
11. Standard net product of governmental sector
12. Labor productivity (output per man-hour)
13. Working time resource in paid man-hours
14. Standard net product of private enterprise sector
15. Standard net product created abroad
16. VNP structure according to final use
17. Private consumer expenditures
18. Totality of consumer goods and services in a breakdown by producing branches
- 19 Yes-no
- 20 Gross internal capital investments
21. Expenditures of federal government
22. Administrative expenditures of states and local organs of government
23. Foreign trade turnover
24. Totality of invested goods in a breakdown by producing branches
25. State procurements of goods and services in a breakdown by producing branches
26. Procurements of goods and services by governmental organs of states and municipalities in a breakdown by producing branches
27. Goods for export and imported goods of final consumption
28. Imported goods of intermediate consumption
29. Marketing costs by branches
30. Final demand in a breakdown by producing branches, in prices of the producers
31. Coefficients of direct expenditures for output of branches in sphere of circulation (trade, transport, insurance) per unit of gross output by the producing branches
32. Dynamics of prices
33. Structural and technological advances
34. Coefficients of direct material expenditures per unit of gross output
35. Labor productivity by branches
36. Working time resource by branches
37. Branch coefficients of labor intensiveness
38. Inter-branch balance for production and distribution of social product
39. Gross output by branches
40. Output of final product by branches
41. Number of working billets by branches  $l_i; i = 1, 2, \dots, n$

the overall man-power strength and the sum of the branch plans, converts the given algorithm into a closed contour, thus creating the condition for its functioning as an integrated model. In this manner, the opportunities for employing the traditional system of national accounts (it is exactly this system that constitutes the foundation of the algorithm under review) in macroeconomic forecasting are expanded considerably.

An important advantage of the method under study lies in the fact that it makes it possible to take into account directly, and not through the wage fund, the number engaged in the national economy. This is made possible by the labor resource balance, presented in the form of a table of branch coefficients for labor expenditures per unit of final product. The limited nature of this balance derives from the fact that the accounting unit in it is not the average annual worker, but

TABLE 4

Place of Branches in Nonproductive Sphere in Economic Structure of U.S.A., in %\*

Branches	Proportion of final production of non-material services for the population in VNP				Proportion of physical persons engaged in nonproductive sphere of overall man-power strength			
	1963	1970	Forecast		1963	1970	Forecast	
			1980	1985			1980	1985
Nonproductive sphere on the whole	26.9	29.1	28.7	29.4	30.3	28.6	30.6	31.4
Including:								
transport services for the population	1.56	1.59	1.65	1.66	2.63	2.07	1.95	1.85
nonproductive communications	1.09	1.44	1.79	2.00	1.60	1.47	1.32	1.25
housing fund and other real estate	8.19	8.85	8.88	9.33	1.90	1.67	1.74	1.76
municipal economy	1.99	2.16	2.08	2.10	1.08	0.89	0.85	0.84
services for population by banking and insurance establishments	2.88	2.94	3.09	3.12	3.68	3.52	3.96	4.16
domestic services for the population	1.00	0.80	0.59	0.52	4.06	2.47	2.68	2.48
legal and consultation services for the population	0.40	0.36	0.30	0.28	1.02	1.03	1.05	1.06
culture, art, sports	0.78	0.63	0.56	0.53	0.93	0.85	0.90	0.90
public health	3.75	3.85	4.48	4.68	4.74	5.19	6.47	6.96
education	3.97	5.16	4.06	3.89	6.55	7.49	7.60	7.94
science; social and political organizations	1.23	1.25	1.18	1.19	2.15	1.99	2.11	2.18

\* Computed according to 26; 27; 28; 22, p 26

\*\* The labor resources in the nonproductive sphere have been taken into account in the indicators in the table, in accordance with the number of working billets. Their number exceeds to a considerable degree the number of average annual workers, since part time employment and the holding down of more than one job are widely practiced in the sphere of services in the U.S.A. The proportion of average annual workers engaged in the nonproductive sphere in the United States economy is lower than the proportion of services in the gross national product. This is explained by the fact that the work performed by workers in the nonproductive branches is more effective than that being performed in the material production sector, owing to the fact that more skilled workers (in terms of their educational level and a number of other indicators) are engaged in the sphere of services.

rather a working billet (physical person). In this manner, the effect on the amount of manpower caused by part time employment and the holding down of two jobs is concealed. In branches in the nonproductive sphere, this leads to serious distortions in the evaluation of labor resources.

Of considerable interest is an experiment in coordinating the traditional elements of the system of national accounts (national income and product accounts) with less

developed forms for presenting macroeconomic data. In forecasting computations, in order to convert over from the VNP structure for elements of final demand to an inter-branch balance and a balance for labor expenditures, the totality of goods and services is transformed from articles of consumption of the respective sectors of the economy (private, investment, governmental) into a nomenclature by producing branches. The appropriate level of the diagram as presented thus performs the function of a unit for adapting the final demand and the branch projections for the production level. Up until now, such adaptation was never carried out in the system of national accounts and this accounted for the limited comparability of the gross national product statistics and the inter-branch balance.

Studies carried out in the Bureau of Labor Statistics are not limited to the development and improvement of the basic diagram for an all-round statistical description of the economic process. As a result of the simulation and forecasting computations carried out, the algorithm was truly used from a statistical standpoint. Using published data, we computed the two general indicators which describe the place of the nonproductive sphere in the economic structure of the U.S.A. (see Table 4).

\* \* \*

A study of the system of national accounts of the U.S.A., in conformity with the problems of macroeconomic accounting for the nonproductive sphere, has revealed that balance methods for including services in the complex of national economic branches is of great practical interest. In addition to material production, the taking into account of the nonproductive sphere in the system of inter-branch relationships, in connection with output production and the distribution of labor resources, makes it possible to coordinate in a more strict manner, in accordance with the resources, the requirements for services and the planned tasks for providing them. The nonproductive sphere appears in the balance tables as an element of the more important indicators of national economic dynamics and effectiveness. All of this serves to expand considerably the means available for analyzing and planning the nonproductive branches as an indispensable factor concerned with the process of social reproduction.

#### FOOTNOTES

1. Here and subsequently the nonproductive sphere of the American economy on the whole is considered according to the branch structure adopted by the USSR CSA. In the process however, the following deviations are accepted: first of all, the governmental and military apparatus is not taken into account; secondly, the services of the "Finances and Insurance" Branch are reflected only in the portion for services for the population, since credit-insurance support for business organizations appears as pure services for material production; thirdly, in the "Science" Branch, of the independent scientific-research establishments only the non-profit ones were considered, owing to failure to complete the statistical material.
2. Together with other Soviet scientists, E.M. Agabab'yan not only recognizes the fact that socialist social-productive relationships exist in the nonproductive sphere, but in fact he even attaches to them special properties



from a quality standpoint. In principle, the opinions of this author serve to confirm the fact that the economic essence of labor in the nonproductive sphere and the product created by it is described in the general laws governing socialist production relationships. /6, pp 28-42/

3. In the NIEI /Scientific Research Institute of Economics/ of USSR Gosplan, an attempt was made to carry out the temporary method for evaluating the services branch, according to which the output of service branches is defined as a function of the time served by the population as a result of the consumption of services /7/. The method of accumulated labor expenditures, proposed by L.I. Nesterov and Ye.M. Bukhval'd for evaluating the national wealth of the USSR in unity with its physical and non-physical elements /8, 9/, appears to be very promising for measuring individual types of services, similar to all other heterogeneous consumer values.
4. The national income and product composite accounts include the national income and product account proper, private income and expenditure account, governmental receipts and expenditures account, foreign economic turnover account and a savings and capital investment account. Statistics for the national income and product are published in the journal "Survey of Current Business." For an analysis of the statistical and economic essence of the indicators for the accounts, see /11, 12/. The materials for this article are based upon data published prior to the review of the indicators for the national accounts of the U.S.A. in December 1980.
5. Computed according to /18/.
6. Since 1978, this data has been published in the Statistical Abstract of the United States, in the section entitled "Personal Health Care Expenditures."
7. The task of subdividing domestic services into productive and nonproductive types has still not been carried out. Its completion requires the development of a standard branch classification for the U.S.A. However, such an analysis goes beyond the scope of this article.
8. Data for 1978. By way of comparison, we wish to note that 4.64 million people were working in public health in the U.S.A. during this same year and in education -- approximately 3.5 million people. Computed according to /19/.
9. Here it should be borne in mind that a computation of output in the VNP structure is carried out on the basis of market prices and in the inter-branch balance -- according to the prices of the producers. This does not hinder a direct comparison of the computations from the two methods, since distribution costs (trade, insurance, transportation) are for all practical purposes lacking in connection with nonproductive services. This is borne out by the price structure for individual types of consumer goods /21, pp 38-39/.
10. The modification proposed by I.M. Shneyderman for changing the existing USSR model for an inter-branch balance, by adding sub-matrices for services to it /13/, conforms to American practice for balance accounting for services.

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- REGIONAL DEVELOPMENT

SCIENCE CONTRIBUTING TO SIBERIAN DEVELOPMENT

Moscow APN DAILY REVIEW in English 14 Apr 82 pp 1-6

[Interview with Academician V. Koptug, Vice-President of the Academy of Sciences of the USSR, President of the Siberian Department of the Academy of Sciences of the USSR: "Siberia's New Step"]

[Text]

At the November Plenary Meeting of the CPSU Central Committee, it was emphasised that in the Eleventh Five-Year Plan period a new major step would be taken in the development of Siberia and the Soviet Far East. Our correspondent A. Illarionov has had an interview on this subject with Academician V.A. Koptug.

Q.: When we are speaking of the new major step of the country's eastern regions, we mean, of course, a step both towards working new treasure-troves of mineral resources and towards developing new uninhabited areas. At the same time, this is a step in the strategy and tactics of development: to accomplish more while using less means and resources. In reaching these goals, the role played by scientists, scientific methods and means is becoming still more important. Could you, please, comment on this?

A.: The Party Congress has endorsed a strategic line for accelerating the build-up of the economic potential of the eastern regions as a major condition for the national economy's stable growth. Therefore, the general direction of economic executives

and scientists in the region is now referred to as "Siberian acceleration." Siberians have now been really carried away by the scale of economic development, of the formation of major territorial production complexes and the building of their basic projects.

If one speaks of the tasks of evening out the territorial distinctions in living conditions, with reference to Siberia, they are complex and manifold. One of the tasks, for example, is to build more housing of modern standards, more kindergartens and creches, making them more comfortable and convenient. The rigorous natural conditions make the successful carrying out of grand transformations dependent to a certain extent on the timely solution of other vital problems. Economists have calculated that the lowering of the average annual air temperature by one degree entails an increase in the retail trade turnover by an average of 17 roubles and more, per capita: the consumption of food products increases and spending grows on warm clothing and footwear. Part of the additional requirements is satisfied by local industries. The other part, say, vegetables and fruit that are lacking, should be brought in this instance from the South, from the Soviet Central Asian Republics.

Man and his vital requirements are in the focus of attention of Soviet science. Scientists of the Siberian Departments of the Academy of Sciences of the USSR, the Lenin USSR Academy of Agricultural Sciences and the Academy of Medical Sciences of the USSR are to make an important contribution to fulfilling the tasks of raising the living standard in the region. The presidiums of our three departments, at their joint meeting held recently, discussed the results of combined efforts to lay the foundations for the food programme of Novosibirsk Region. Similar work is in progress for other territories and regions in Siberia.

The scale of the new tasks is such that they can no longer be fulfilled by means of scientists' occasional intervention in some or other sectors of production. In anticipation of this, in

the past five-year plan period we started framing a major comprehensive programme for using natural resources, which is now widely known by its short name "Siberia." The Party points to the need for enlarging the scale of drawing up and implementing purpose-oriented comprehensive programmes, and we are pleased that there is active progress in this direction.

Q.: The programme "Siberia" not only contains scientific forecasts for the future, but also outlines ways and means of their materialisation. How does it combine profound basic research and measures to prepare its findings for practical applications?

A.: Forecasting, basic and applied research and development happily complement one another. I shall give an example.

The country needs more gas, and prospecting for it goes on. It has now transpired that in the North-East there are occurrences of it in the form of solid compounds with water, what is referred to as gas hydrates. Recovering such "combined" gas is a complex scientific and technological task. There are different ways of fulfilling it: it is possible to unfix such a hydrate, with gas being given off, by reducing pressure and raising temperature, by acting on it chemically. The task before basic research is to study the laws governing the behaviour of hydrates in different conditions, while the applied task is to develop techniques for gas recovery from such unusual deposits.

The work done under the "Siberia" programme, for which the efforts of experts of more than 400 research institutes and design offices belonging to various departments have been pooled, has made it possible to take a new step in the field of merging science with production. Research under the purpose-oriented programmes "Oil and Gas of Western and Eastern Siberia," "Coals of the Kuznetsk Basin" and "Economic Development of the Zone Adjoining the Baikal-Amur Railway" is included in the plan for the current five-year period. Such programmes as "Rare Metals of Siberia" and "Metrological Backing for the Economy of the Region," for example, have also appeared. Returning to the food programme, I

shall say a few words about the work of biologists. They are to evolve new varieties and hybrids of plants and new breeds of animals well adapted to rigorous conditions and distinguished for a high degree of productivity. An important part in this is to be played by the Altai centre of genetics, where a gene pool--local and other highly productive breeds of animals--will be set up.

Q.: Having visited Norilsk, Izvestia correspondents received further confirmation of the practicability of the "Siberia" programme. But what stands out in particular is the striving and ability of production workers of the Norilsk combine to find a common language with research workers of the Siberian Department of the Academy of Sciences. Nevertheless, the mechanism of practical applications of scientific achievements is still to be adjusted. How do you visualise cooperation with production within the next few years?

A.: There are many levels within the system of our cooperation, working for some particular branches of industry, for the national economy through the State Planning Committee of the USSR or through the State Committee for Science and Technology. Our department has extensive possibilities for R & D with applications in the national economy: from microelectronic devices to techniques for producing substances with pre-set properties, from new medicines to new effective varieties of farm crops.

The mastering of scientific achievements in production, however, still calls for enormous organisational effort, that is, it so far remains a process of "introduction" involving certain difficulties. In my view, this is so due to the fact that economic levers are still used inadequately for stimulating scientific and technological growth, and such levers must make the science-production system self-adjusting to a greater extent and not needing a multitude of organisational props. Therefore, I would like to see such mutual relations where economic factors would prompt production workers to seek new technical and technological ap-

proaches, and scientists to speed up the transfer of research findings for application in the national economy.

Q.: In connection with the economic development of new areas Siberian science cannot help distributing its strength over a large territory, following practical local requirements and taking into account such problems of the periphery that go beyond the framework of areas and regions. Building on permafrost and the tasks of geological engineering in conditions of high seismicity are problems both local and global. Most likely, the near future will see the setting up of new and extending old local science centres of the department. Any comment?

A.: The Siberian Department was set up for the purpose of building up a scientific base and a cadre potential, so as to ensure the speeded-up development of the productive forces in eastern areas. From the outstart, the need was obvious for the branching of science to cover all the major national economic centres in Siberia.

Today, we are giving much attention to our branches in Irkutsk, Yakutsk, Tomsk, Krasnoyarsk and Ulan-Ude, and to the formation of science complexes in other cities. We also take into account the necessity of setting up our Academy's units in such important economic areas of the country as Tyumen Region, the Kuznetsk coal basin, Altai Territory, and the trans-Baikal area (in Chita). Within the framework of the Siberian Department of the Academy of Sciences of the USSR, a whole network of academic institutes covering the region both territorially and as regards the lines of research is to be developed branchwise.

Q.: Perhaps, it is not out of place here to mention a recent event: of the ten Siberian scientists elected at a general meeting of the Academy of Sciences as new members of the Academy, five live and work in the peripheral centres of the Siberian Department.

A.: And this in the past year alone! But only a quarter-century ago, prior to the founding of the Department, there were



a mere 40 doctors, 300 candidates of sciences and only one Corresponding Member in all of the Academy's institutions here. Today, nearly a hundred Full and Corresponding Members of the USSR Academy of Sciences and a large number of doctors and candidates of sciences are working in the Academy's institutions in Siberia. Nowadays, without detriment to our own research work, we can render assistance by commissioning a cadre of scientists for work at higher educational establishments, ministries and departments. In the last two years, more than 200 doctors and candidates of sciences have gone over and are working successfully there.

Still, the problem of training a cadre of scientific workers is continuously on the agenda. The Party's grand plans and the people's plans call for a constant inflow of fresh forces and new talent. For the purpose of improving the training of cadres of scientists, ties between science and higher education are being further developed, research as an element of the teaching process is being practised on a large scale, and use is being made of cybernetics facilitating the development by students of habits of research with the application of up-to-date methods and techniques.

(Nedelya, No.13. Abridged.)

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